

EXPERIMENTAL VALIDATION OF A QUICK-RUNNING BLAST INGRESS MODEL

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Over the past decade, DRDC Suffield has conducted several dozens of full-scale experiments assessing blast ingress into military protective structures. It has developed a software tool, “Military Blast Effects Expert System” (MBEES), which can be used for rapid evaluation of the protective capability and structural response of military protective structures. Recently a full-scale trial series was conducted in an effort to help validate some of the ingress pressures predicted by the ingress models. The purpose of this paper is to present the method undertaken to formulate the quick running ingress models, present some of the difficulties considered in assessing personnel vulnerability from blast ingress, and present the comparisons of experimental pressure ingress levels to that of the model. Because it was not practical to instrument the experimental structure with hundreds of gauge points, a CFD model is formulated and validated with the experimental pressures. It is then used to compare average pressures and standard deviations from hundreds of monitoring points in the interior volume of the structure. Conclusions obtained from the comparisons will help test the effectiveness of the model in predicting blast ingress.